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- (72) Inventors: KING, Alan, D.; 405 Lincoln Avenue, Takoma Park, MD 20912 (US). WALTER, Richard, E.; 6248 Wild Swan Way, Colombia, Maryland 21045 (US). For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ELECTRODES COATED WITH TREATING AGENT AND USES THEREOF

(57) Abstract: An object of the invention is to provide a method for delivery of macromolecules into biological cells in the tissues of a patient and includes the steps of: (a) providing electrodes (16) in an electrode assembly (12), wherein the electrodes have fixed electrode surfaces (42) which are coated with at least one static layer of electrode releasable molecules (44) to be delivered; (b) providing a waveform generator (15) for generating electric fields; (c) establishing electrically conductive pathways between the electrodes (16) and the waveform generator (15); (d) locating the electrodes (16), such that the biological cells are situated therebetween, and (g) providing electric fields in the form of pulse waveforms from the waveform generator (15) to the electrodes (16), such that molecules in the at least one static layer of the electrode releasable molecules (44) on the electrodes (16) are delivered into the biological cells. The electrode releasable molecules (44) can be either electric field separable molecules and/or solvent separable material. Another object of the invention is to provide an apparatus for carrying out the method of the invention. The static-coated electrode assembly (12) can be provided in a sterile package (24), from which the electrode assembly (12) is removed prior to use. The statically-coated electrode assembly (12) can be in a form of a disposable assembly (12) which is removable and replaceable from an electrode assembly holder (13).

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/21314

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 13/00; A61N 1/30

US CL : 435/173.6, 604/19, 20, 21, 501

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/173.6, 604/19, 20, 21, 501

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,832,682 A (SARNOFF) 23 May 1989 (23.05.1989).	1-51
A	US 5,964,726 A (KORENSTEIN et al.) 12 October 1999 (12.10.1999).	1-51
A	US 5,993,434 A (DEV et al.) 30 November 1999 (30.11.1999).	1-51
A	US 6,090,617 A (MESEROL) 18 July 2000 (18.07.2000).	1-51

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

Special categories of cited documents:	
* "A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:
USPT, EPAB, JPAB, DWPI, STN INDEX BIOSCIENCE (67 FILES)
search terms: coated electrode, static, electrostatic, delivery, electroporation

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